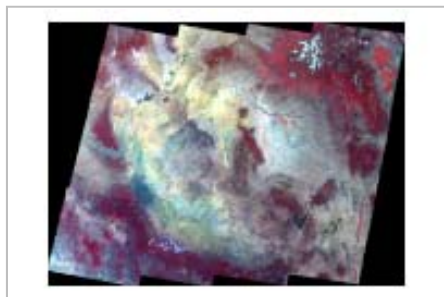# Landsat 5 Multispectral Scanner (MSS) Bands 4, 3, & 2 for the Navajo Nation

Data format: Raster Dataset - ERDAS IMAGINE

File or table name: Nav_MSS.img

Coordinate system: Universal Transverse Mercator

Theme keywords: Landsat 4, Landsat 5, Landsat Image Mosaic, 1990's NALC Triplicates, False Color Infrared Composite

Abstract: This Landsat MultiSpectral Scanner (MSS) image mosaic was developed from North American Landscape Characterization (NALC) Triplicate Data. The MSS bands 4, 3, and 2 are in the order 1, 2, and 3, and when displayed with red, green, and blue, respectively, a False Color Infrared composite image is produced, wherein vegetation is colored red on the image. Four MSS images comprise the mosaic that were acquired on 08/28/92 (Landsat 4 Path 36 / Row 34), 09/05/92 (Landsat 5 Path 36 / Row 35), and two on 06/18/92 (Landsat 4 Path 35 / Rows 34 and 35). This imagery is precision corrected (i.e. uses ground control points) and is terrain corrected.

FGDC and ESRI Metadata:

- Identification Information
- Data Quality Information
- Spatial Data Organization Information
- Spatial Reference Information
- Entity and Attribute Information
- Distribution Information
- Metadata Reference Information
- Binary Enclosures

Metadata elements shown with blue text are defined in the Federal Geographic Data Committee's (FGDC) *Content Standard for Digital Geospatial Metadata (CSDGM)*. Elements shown with green text are defined in the *ESRI Profile of the CSDGM.* Elements shown with a green asterisk (*) will be automatically updated by ArcCatalog. ArcCatalog adds hints indicating which FGDC elements are mandatory; these are shown with gray text.

Identification Information:

Citation:
Citation information:
Originators: U.S. Environmental Protection Agency (EPA), the U.S. Geological Survey (USGS), and National Aeronautics and Space Administration (NASA)

Title:
Landsat 5 Multispectral Scanner (MSS) Bands 4, 3, & 2 for the Navajo Nation
***File or table name:** Nav_MSS.img

Publication date: 1993-1996

*Geospatial data presentation form: remote-sensing image

Publication information:
>   **Publication place:** Sioux Falls, SD
>   **Publisher:** EROS Data Center Distributed Active Archive Center (EDC DAAC),

*Online linkage: \\Terra_dc\Navajo\NAUM_NN_Summary\DB\Satellite\Nav_MSS.img

Description:
>   **Abstract:**
>   This Landsat MultiSpectral Scanner (MSS) image mosaic was developed from North American Landscape Characterization (NALC) Triplicate Data. The MSS bands 4, 3, and 2 are in the order 1, 2, and 3, and when displayed with red, green, and blue, respectively, a False Color Infrared composite image is produced, wherein vegetation is colored red on the image. Four MSS images comprise the mosaic that were acquired on 08/28/92 (Landsat 4 Path 36 / Row 34), 09/05/92 (Landsat 5 Path 36 / Row 35), and two on 06/18/92 (Landsat 4 Path 35 / Rows 34 and 35). This imagery is precision corrected (i.e. uses ground control points) and is terrain corrected.

>   **Purpose:**
>   The primary objective of the Landsat Project is to ensure a collection of consistently calibrated Earth imagery, supporting the scientific objectives of monitoring changes in the Earth's land surface and associated environment. Landsat data have been used in both national and international arenas for a variety of government, public, and private applications, including land and water management, global change research, oil and mineral exploration, agricultural yield forecasting, pollution monitoring, land surface change detection, and cartographic mapping.

>   ***Language of dataset:** en

Time period of content:
>   **Time period information:**
>   >   **Multiple dates/times:**
>   >   >   **Single date/time:**
>   >   >   >   **Calendar date:** 08/28/92
>   >   >   **Single date/time:**
>   >   >   >   **Calendar date:** 09/05/92
>   >   >   **Single date/time:**
>   >   >   >   **Calendar date:** 06/18/92

>   **Currentness reference:**
>   >   ground condition

Status:
>   **Progress:** Complete
>   **Maintenance and update frequency:** None planned

Spatial domain:
>   **Bounding coordinates:**
>   >   ***West bounding coordinate:** -113.531872
>   >   ***East bounding coordinate:** -105.491100
>   >   ***North bounding coordinate:** 38.416318
>   >   ***South bounding coordinate:** 33.638067

>   **Local bounding coordinates:**
>   >   ***Left bounding coordinate:** 278871.000000

*__Right bounding coordinate:__ 981951.000000
*__Top bounding coordinate:__ 4252008.000000
*__Bottom bounding coordinate:__ 3734148.000000

Keywords:
> **Theme:**
>> **Theme keywords:** Landsat 4, Landsat 5, Landsat Image Mosaic, 1990's NALC Triplicates, False Color Infrared Composite
>> **Theme keyword thesaurus:** None
>
> **Place:**
>> **Place keywords:** Navajo Nation, Arizona, New Mexico, USA
>> **Place keyword thesaurus:** None

Access constraints: None
Use constraints:
> This MSS image mosaic covers the entire Navajo Nation and surrounding area. This image mosaic covers parts of four path / rows (Landsat 4 Path 36 / Row 34, Landsat 5 Path 36 / Row 35, and Landsat 4 Path 35 / Rows 34 and 35). Spectrally bands 1, 2, and 3 are equivalent to Landsat MSS bands 4, 3, and 2, respectively, and when displayed with red, green, and blue, respectively, a false color infrared composite image is created.
>
> Use of this data generally requires computer workstations with ESRI's Arc/Info (7.x or above), ArcGIS (8.x or above), or ArcView (3.x or 8.x), or some other GIS or CAD software that is capable of reading or converting this dataset.
>
> The data are provided "as-is," without warranty of any kind, either express or implied.
>
> These data have been compiled as part of a desktop project to collect existing spatial data to support the study of Navajo abandoned uranium mines. No field verifications were undertaken as part of this desktop study.

Point of contact:
> **Contact information:**
>> **Contact organization primary:**
>>> **Contact organization:** U. S. Environmental Protection Agency, Region 9, Superfund Program
>>
>> **Contact address:**
>>> **Address type:** mailing and physical address
>>> **Address:**
>>>> 75 Hawthorne St (SFD 8-2)
>>> **City:** San Francisco
>>> **State or province:** CA
>>> **Postal code:** 94105
>>> **Country:** USA
>>
>> **Contact voice telephone:** 415-972-3167

Security information:
> **Security classification system:** None

*__Native dataset format:__ Raster Dataset
*__Native data set environment:__
> Microsoft Windows XP Version 5.1 (Build 2600) Service Pack 2; ESRI ArcCatalog 9.1.0.780

Data Quality Information:

Logical consistency report:
Not Applicable

Completeness report:
This MSS image mosaic covers the entire Navajo Nation and surrounding area. This image mosaic covers parts of four path / rows (Landsat 4 Path 36 / Row 34, Landsat 5 Path 36 / Row 35, and Landsat 4 Path 35 / Rows 34 and 35). Spectrally bands 1, 2, and 3 are equivalent to Landsat MSS bands 4, 3, and 2, respectively, and when displayed with red, green, and blue, respectively, a false color infrared composite image is created.

Positional accuracy:
Horizontal positional accuracy:
Horizontal positional accuracy report:
Total Root Mean Square Errors (RMSEs) of less than 1.0 pixel, where one pixel equals 60 meters.

Lineage:
Source information:
Source citation:
Citation information:
Originators: U.S. Environmental Protection Agency (EPA), the U.S. Geological Survey (USGS), and National Aeronautics and Space Administration (NASA)

Title:
North American Landscape Characterization (NALC) project

Publication date: 1993-1996
Geospatial data presentation form: remote-sensing image

Publication information:
Publication place: Sioux Falls, SD
Publisher: EROS Data Center Distributed Active Archive Center (EDC DAAC)

Source scale denominator: NA
Type of source media: CD-ROM
Source citation abbreviation:
NALC Triplicates
Source contribution:
Four MSS images comprise the mosaic that were acquired on 08/28/92 (Landsat 4 Path 36 / Row 34), 09/05/92 (Landsat 5 Path 36 / Row 35), and two on 06/18/92 (Landsat 4 Path 35 / Rows 34 and 35).

Source time period of content:
Time period information:
Multiple dates/times:
Single date/time:
Calendar date: 08/28/92
Single date/time:

Calendar date: 09/05/92
Single date/time:
Calendar date: 06/18/92

Source currentness reference:
ground condition

Process step:
Process description:
The four 1990s NALC triplicates were imported into ERDAS Imagine 8.4, The images were color matched, mosaiced, and output to UTM, Zone 12, NAD83.

Process software and version: ERDAS Imagine 8.4
Process date: 1999

Source used citation abbreviation:
NALC Triplicates

Process contact:
Contact information:
Contact organization primary:
Contact organization: TerraSpectra Geomatics

Contact address:
Address type: mailing and physical address
Address:
2700 E Sunset Rd, Ste A-10
City: Las Vegas
State or province: NV
Postal code: 89120
Country: USA

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Spatial Data Organization Information:

*__Direct spatial reference method:__ Raster

Raster object information:
*__Image format:__ ERDAS IMAGINE
*__Number of bands:__ 3

*__Row count:__ 8631
*__Column count:__ 11718
*__Vertical count:__ 1

*__Cell size X direction:__ 60.000000
*__Cell size Y direction:__ 60.000000

*__Bits per pixel:__ 8
*__Pyramid layers:__ TRUE
*__Image colormap:__ FALSE
*__Compression type:__ None

*Raster object type: Pixel
*Raster display type: pixel codes
*Raster origin: Upper Left

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Spatial Reference Information:

Horizontal coordinate system definition:
Coordinate system name:
*Projected coordinate system name: NAD_1983_UTM_Zone_12N
*Geographic coordinate system name: GCS_North_American_1983

Planar:
Grid coordinate system:
*Grid coordinate system name: Universal Transverse Mercator
Universal Transverse Mercator:
*UTM zone number: 12
Transverse mercator:
*Scale factor at central meridian: 0.999600
*Longitude of central meridian: -111.000000
*Latitude of projection origin: 0.000000
*False easting: 500000.000000
*False northing: 0.000000

Planar coordinate information:
*Planar coordinate encoding method: row and column
Coordinate representation:
*Abscissa resolution: 60.000000
*Ordinate resolution: 60.000000
*Planar distance units: meters

Geodetic model:
*Horizontal datum name: North American Datum of 1983
*Ellipsoid name: Geodetic Reference System 80
*Semi-major axis: 6378137.000000
*Denominator of flattening ratio: 298.257222

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Entity and Attribute Information:

Detailed description:
*Name: Layer_1

Entity type:
*Entity type label: Layer_1
*Entity type type: Table
*Entity type count: 256

Attribute:
*Attribute label: ObjectID
*Attribute alias: ObjectID

*Attribute definition:
Internal feature number.
*Attribute definition source:
ESRI

*Attribute type: OID
*Attribute width: 4
*Attribute precision: 0
*Attribute scale: 0

Attribute domain values:
*Unrepresentable domain:
Sequential unique whole numbers that are automatically generated.

Attribute:
*Attribute label: Value
*Attribute alias: Value

*Attribute type: Integer
*Attribute width: 0
*Attribute precision: 0
*Attribute scale: 0

Attribute:
*Attribute label: Count
*Attribute alias: Count

*Attribute type: Double
*Attribute width: 0
*Attribute precision: 0
*Attribute scale: 0

Detailed description:
*Name: Layer_2

Entity type:
*Entity type label: Layer_2
*Entity type type: Table
*Entity type count: 256

Attribute:
*Attribute label: ObjectID
*Attribute alias: ObjectID
*Attribute definition:
Internal feature number.
*Attribute definition source:
ESRI

*Attribute type: OID
*Attribute width: 4
*Attribute precision: 0
*Attribute scale: 0

Attribute domain values:
*Unrepresentable domain:
Sequential unique whole numbers that are automatically generated.

Attribute:
    ***Attribute label:** Value
    ***Attribute alias:** Value

    ***Attribute type:** Integer
    ***Attribute width:** 0
    ***Attribute precision:** 0
    ***Attribute scale:** 0

Attribute:
    ***Attribute label:** Count
    ***Attribute alias:** Count

    ***Attribute type:** Double
    ***Attribute width:** 0
    ***Attribute precision:** 0
    ***Attribute scale:** 0

Detailed description:
    ***Name:** Layer_3

Entity type:
    ***Entity type label:** Layer_3
    ***Entity type type:** Table
    ***Entity type count:** 256

Attribute:
    ***Attribute label:** ObjectID
    ***Attribute alias:** ObjectID
    ***Attribute definition:**
        Internal feature number.
    ***Attribute definition source:**
        ESRI

    ***Attribute type:** OID
    ***Attribute width:** 4
    ***Attribute precision:** 0
    ***Attribute scale:** 0

    Attribute domain values:
        ***Unrepresentable domain:**
            Sequential unique whole numbers that are automatically generated.

Attribute:
    ***Attribute label:** Value
    ***Attribute alias:** Value

    ***Attribute type:** Integer
    ***Attribute width:** 0
    ***Attribute precision:** 0
    ***Attribute scale:** 0

Attribute:
    ***Attribute label:** Count
    ***Attribute alias:** Count

***Attribute type:** Double
***Attribute width:** 0
***Attribute precision:** 0
***Attribute scale:** 0

Overview description:
Dataset overview:
This Landsat 4 & 5 MMS image mosiac is 1583 rows by 1756 columns with three channels (1, 2, 3) of data for MSS bands 4, 3, and 2. When these are displayed with red, green, and blue, respectively a false color infrared composite image is created, wherein vegetation is colored red.

Entity and attribute overview:
The Landsat MMS data is comprised of the folowing channels, spectral bands, and portion of the electromagentic spectrum in micormeters:

Channel 1 - Band 4: 0.8 - 1.1 (short wave near-infrared)
Channel 2 - Band 3: 0.7 - 0.8 (red)
Channel 3 - Band 2: 0.6 - 0.7 (green)

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Distribution Information:

Distributor:
Contact information:
Contact organization primary:
Contact organization: U. S. Environmental Protection Agency, Region 9, Superfund Records Center

Contact address:
Address type: mailing address
Address:
95 Hawthorne St (SFD-7C)
City: San Francisco
State or province: CA
Postal code: 94105
Country: USA

Contact voice telephone: 415-536-2033

Resource description: Downloadable Data

Distribution liability:
Although these data have been processed successfully on a computer system for the US EPA, no warranty expressed or implied is made by the US EPA or its contractors regarding the utility of the data on any other system, nor shall the act of distribution constitute any such warranty. No responsibility is assumed by US EPA or its contractors in the use of these data.

Standard order process:
Digital form:
Digital transfer information:
***Transfer size:** 0.000

*Dataset size: 0.000

Custom order process:
> Contact the US EPA for a custom order.

Technical prerequisites:
> Use of this data generally requires computer workstations with ESRI's Arc/Info (7.x or above), ArcGIS (8.x or above), or ArcView (3.x or 8.x), or some other GIS or CAD software that is capable of reading or converting this dataset.

Available time period:
> **Time period information:**
>> **Single date/time:**

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Metadata Reference Information:

*Metadata date: 20070730

*Language of metadata: en

Metadata contact:
> **Contact information:**
>> **Contact person primary:**
>>> **Contact person:** Andrew Bain
>>> **Contact organization:** U. S. Environmental Protection Agency, Region 9, Superfund Program
>> **Contact position:** Project Manager
>>
>> **Contact address:**
>>> **Address type:** mailing and physical address
>>> **Address:**
>>>> 75 Hawthorne St (SFD 8-2)
>>> **City:** San Francisco
>>> **State or province:** CA
>>> **Postal code:** 94105
>>> **Country:** USA
>>
>> **Contact voice telephone:** 415-972-3167

*Metadata standard name: FGDC Content Standards for Digital Geospatial Metadata
*Metadata standard version: FGDC-STD-001-1998
*Metadata time convention: local time

Metadata access constraints: None.
Metadata use constraints:
> None.

Metadata security information:
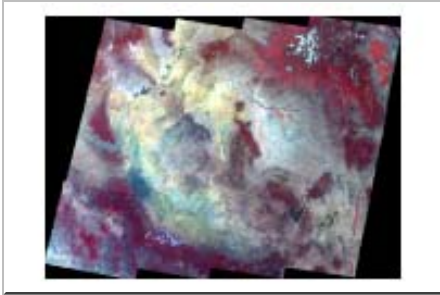> **Metadata security classification system:** None

Metadata extensions:
> ***Online linkage:** http://www.esri.com/metadata/esriprof80.html
> ***Profile name:** ESRI Metadata Profile

Binary Enclosures:

Thumbnail:
Enclosure type: Picture